

ABSTRACT

A local injection and detection system assesses the attenuation of light propagating from a first optical fiber to a second optical fiber associated therewith. The system comprises a light injector, a light detector, a driver to energize a light source in the injector, and a receiver. Light from the light source is injected into the first optical fiber and propagates therethrough. A portion of the propagating light in the second fiber is extracted onto a light responsive element in the detector. The system is particularly adapted for use in a system for splicing optical fibers, the system minimizing the insertion loss of the joint by optimally aligning the fibers prior to fusing them. In addition, the insertion loss of a joint can be inferred by comparing light attenuation before and after the joint is fused.

The present system is compact and low in profile, enabling it to be used with a fusion splicer that operates with minimal clearance to adjacent equipment and structures. Simplicity of design and operation enable accurate alignment and low loss fusion of fibers for which only a minimal amount of free slack is available.